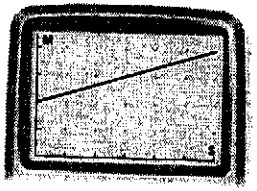
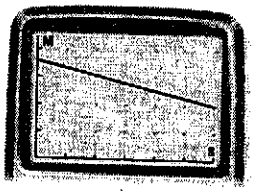
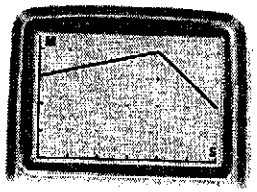
Name_____ Period_____ Date_____

You will need: a 4-meter measuring tape or four metersticks per group, a stopwatch or watch that shows seconds

Imagine that you have a 4-meter measuring tape positioned on the floor. A motion sensor measures your distance from the tape's 0-mark as you walk, and it graphs the information. On the calculator graphs shown here, the horizontal axis shows time from 0 to 6 seconds and the vertical axis shows distance from 0 to 4 meters.

a. 

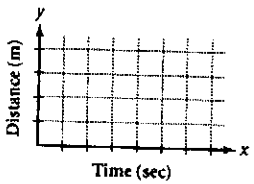
b. 

c. 

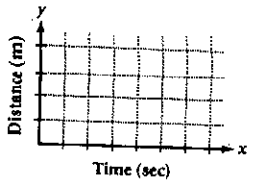
Step 1 Write a set of walking instructions for each graph. Tell where the walk begins, how fast the person walks, and whether the person walks toward or away from the motion sensor located at the 0-mark.

Step 2 Graph a 6-second walk based on each set of walking instructions or data.

a. Start at the 2.5-meter mark and stand still.

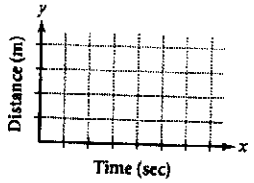


b. Start at the 3-meter mark and walk toward the sensor at a constant rate of 0.4 meter per second.



c.

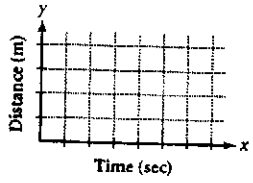
Time (s)	0	1	2	3	4	5	6
Distance (m)	0.8	1.0	1.2	1.4	1.6	1.8	2.0



Step 3 Write a recursive routine for the table in Step 2c.

For the next part of the investigation, you will need the measuring tape and stopwatch or watch. Your group will need a space about 4 meters long and 1.5 meters wide (13 feet by 5 feet). Tape to the floor the measuring tape (or four metersticks end-to-end). Assign these tasks among your group members: walker, recorder, coach, and timer.

Step 4 Your group will try to create the graph shown in Step 1, graph a. Remember that you wrote walking directions for this graph. At a signal from the timer, the walker begins walking from one end of the marked distance toward the other. The timer announces the time at one-second intervals, and the recorder records the walker's distance from the beginning point at each second, while the coach gives suggestions to the walker about walking speed. Graph your (*time, distance*) data. List ideas about what you could have done to better replicate the graph.



Step 5 Rotate jobs, and repeat Step 4 to model graphs b and c from Step 1 and the three descriptions from Step 2.